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TITLE: Process for extraction and purification of lutein, zeaxanthin and rare carotenoids from marigold flowers and plants

BSPR:

During the past decade, the author and coworkers have isolated, identified, and quantified carotenoids from fruits and vegetables commonly consumed in the U.S. These studies have revealed that as many as 40 to 50 carotenoids may be available from the diet and absorbed, metabolized, or utilized by the human body (Khachik et al. 1991, Pure Appl. Chem., 63: 71-80). However, among these, only 13 carotenoids and 12 of their stereoisomers are routinely found in human serum and milk (Khachik et al. 1997, Anal. Chem. 69:1873-1881). In addition, there are 8 carotenoid metabolites and one stereoisomer in human serum or plasma which result from a series of oxidation-reduction reactions of three dietary carotenoids, namely, lutein, zeaxanthin, and lycopene. These metabolites were first isolated and characterized by Khachik et al. (1992, Anal. Chem. 64: 2111-2122). In another study, the ingestion of purified supplements of dietary (3R,3'R,6'R)-lutein and (3R,3'R)-zeaxanthin was shown to not only result in an increase in the blood levels of these compounds in humans but also increased the concentration of their oxidative metabolites in plasma (Khachik et al. 1995, J. Cellular Biochem. 22:236-246). These findings, for the first time, provided preliminary evidence for the long standing hypothesis that carotenoids may function as antioxidants in disease prevention. In addition, these results also established the importance of non-vitamin A active dietary carotenoids, particularly, lutein, zeaxanthin, and lycopene.

ORPL:

F. Khachik, et al., "Lutein, Lycopene, and their Oxidative Metabolites . . . Cancer" in Journal of Cellular Biochemistry, Suppl. 22 (1995), pp. 236-246.

Not cited